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Prepared by [redacted]

26 June 1969

1. Throttle back from limit E.G.T.
2. Not on C
3.

NOTES ON EPR FLUCTUATIONS

1. Exists on U2C (where?) and U2R
2. Some Pilots squawk it or comment on it frequently. Some Pilots never mention it unless it is severe.
3. It seems to come in two varieties:
   A. EPR needle movement only.
   B. EPR, RPM and EGT all move and sometimes a noise or vibration in sync with needle movement is present.
4. On a given airplane - engine combination it is not always present.
5. Some people feel it is a function of FAT. Data doesn't substantiate this.
6. Most people say the aircraft is always smoother on the emergency fuel system. Very little factual data to substantiate this on the U2R. No data refuting it.
7. Reducing EGT and RPM slightly usually eliminates it.
8. Objective should be to eliminate what is seen, heard and felt by the Pilot.
9. It is assumed that the EPR is reflecting any airflow changes in the engine. More damping in the EPR instrumentation system should eliminate item 3A.
10. It appears that item 3B is an unstable airflow-fuel flow condition. If item 6 is true, it looks as though a change in fuel control sensing response could cure item 3B.
11. Items 9 and 10 would not necessarily cure the basic problem, but would obtain the objective and eliminate the problem.
12. This program can be accomplished without special instrumentation by trying various damping configurations and obtaining qualitative Pilot evaluation.

1. Can correlates with F.A.T.
2. Bell Sell rate does not correlate
3. may get out of it during climb (chunky)
4. pull back on pwr on a cold day — never achieve power E.P.R. limit.
5. Engine in C does not equate the same 053/061 both have same

1.220

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1. where EGT comes from cycling
2. EPR oscillates
   EGT moves with it - barely RPM with it
3. 2 cases 3 weeks 053/061 had the problem 40° colder
   B/L flew the next day w/ std. temp. no problem
4. Fuel control changed the characteristics between chunky's flt.
5. Apparently not a fuel control problem when in emergency
6. Chunky [redacted]/2 CPS
7. Amplitude increases cycles ~~[redacted]~~ increase
8. as amplitude increases then the engine responds more solidly.
9. 54, 55 (051) non std. air apt. engs. Tank in std. tank empty may have indicated a problem.
10.
11. Burner pressure (~~[redacted]~~) possibility
12. Burner pressure
13. E.G.T.

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1. limit cycle control - test with burner pressure damping - ?
2. RPM. climb - reducing throttle to limit E.G.T. also reduces RPM - chunky -
3. possible change R.P.M. (No chance P.W.
4. why not have fuel control people here. change listages
5. ~~Don't~~ RPM change not ~~much~~ known to any detail - not very much - like only 1 case that it's been noted.
6. Back lash in the fuel control and throttle causes hunting.
7. the flt. test program should provide maximum instrumentation.
8. add other things to the list.
9. out of

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There were 58 Reported LAC cases of EPP fleet of this

052 - Flt 823 on 5-17-68 The first case of Engine RPMS

26 - 6-28-68

053 clear

054 - [6] 4-19-68 - EPR 8/660

12 - 5-1-68 - pulsation

67 - 2-12-69 [redacted]
75 3-18-69

055 ok more

056 - 19/9-26-68/

057 2/ 8-2-68

5/18-22-68 70/min Beat

058 2/8-23-68

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059/ 18/ 6-19-69/ Vibration on down cycle EPR
Same case.

6-19-67

061/ 31 ~~flaw~~ 6-16-69 fluid & grinding

32 6-11-67 EGT/EPR
Grinding.

062/ 3/ 12-5-68/ at ~~72.5~~ below 90 m, had EGT & EPR

8/ 1-3-69 —

37/ 5-20-69 Grinding noise louder on hi side of EPR cycle - acoust. increased freq to 8 KCPS then out.

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should operate program
to define problem then
either
1. modify engine to fix
2. tell pilot it is to be
expected, and accepted.

3. B. During program write
ups will continue to be made
in the same condition.

we shall be rejecting more power
on the program. and should
evaluate what other data we
can get for this program.

Done

1. E&R flex could be arranged
2. Emergency doesn't have —
Rich a program to eliminate some
3. of the parameters. i.e. isolate
the fuel control (RPM) variations

try find problem in EM. Control

This is being expected

Clear

59 carries enough fuel to perform EM.
than 665/765 — then the test
can be duplicated in emergency
to try to find the leak.

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All problem may be thinking
the problem

25X1A5a2

[redacted]

w. r. tests of the frame
at Preston

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